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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,463	12/23/2003	Young Shik Kang	P69400US0	8143
7590 03/08/2005			EXAMINER	
Yoon S. Ham, Esq Piper Rudnick LLP P.O.Box 9271 Reston, VA 20195			TRA, TUYEN Q	
			ART UNIT	PAPER NUMBER
			2873	

DATE MAILED: 03/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/743,463

Applicant(s)

KANG ET AL.

Examiner

Tuyen Q. Tra

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 5 and 6 is/are rejected.
- 7) ☒ Claim(s) 3 and 4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Suzuki et al. (U.S. Pat. 5,416,338 A).

a) With respect to claim 1, Fujii discloses a semiconductor laser in Figure 12 comprising of an absorption layer (item TQW), upper and lower clad layers (items 14, 20 made of clad material AlGaAs) formed on upper and lower portions of the absorption layer respectively; and electrodes (item 11, 25) for applying an electric field to the absorption layer, wherein the absorption layer is constructed by combination of two quantum wells (15 and 19, made of quantum well material), with having a width different from each other (Figure 12 shows layers 14 and 19 having different width).

b) With respect to claim 2, Suzuki et al. further discloses wherein the two quantum wells include a first quantum well having a narrow width and second quantum well having wide width, the absorption layer having at least one of the first and second quantum well having a wide width at a ratio of ( $m > n$ ), where  $m$  is the number of first quantum wells and  $n$  is the number of second quantum wells.

2. Claims 1, 5 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Fujii (U.S. Pat. 5,822,348 A).

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- a) With respect to claim 1, Fujii discloses a semiconductor laser in Figure 1 comprising of an absorption layer (item 101), upper and lower clad layers (items 105, 103) formed on upper and lower portions of the absorption layer (101), respectively; and electrodes (items 112, 111) for applying an electric field to the absorption layer, wherein the absorption layer is constructed by combination of two quantum wells with having a width different from each other (col. 6, lines 14-16).
- b) With respect to claims 5 and 6, Fujii further discloses wherein the absorption layer included compound based material; wherein the lower clad layer is formed of a semiconductor substrate.

#### **Allowable Subject Matter**

3. Claims 3 and 4 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The reason for the indication of allowable subject matter is that (claim 3) wherein the quantum well having the narrow width has a value of a greater than that of the quantum well having the wide width in the following equation  $P_{out} = P_{in} \exp(- (V/V_o)^a)$  disclosed in the claims is not found in the prior art.

#### **RESPONSE TO APPLICANT'S AGUEMENT**

4. Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new ground of rejection.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

#### **Conclusion**

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sakata (U.S. Patent US 5,580,818 A) discloses fabrication process for semiconductor optical device with teaching of an absorption MQW (multiple-quantum well) 104 comprised of InGaAs well layer and 1.3 micrometer composition InGaAsP barrier layer (FIG. 7B).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuyen Tra whose telephone number is (571) 272-2343. The examiner can normally be reached on Monday to Thursday from 8:30am to 6:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps, can be reached on (571) 272 - 2328. The fax number for this Group is (703) 872-9306.

tt

March 2, 2005

  
Hung Xuan Dang  
Primary Examiner